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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,900	03/31/2004	Tsung-Kuan Allen Chou	P-6477-US	5011
49444	7590	10/05/2006	EXAMINER	
PEARL COHEN ZEDEK LATZER, LLP 1500 BROADWAY, 12TH FLOOR NEW YORK, NY 10036			ROJAS, BERNARD	
			ART UNIT	PAPER NUMBER
			2832	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,900

Applicant(s)

CHOU ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8, 11-13, 15 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 5-8, 11-13, 15 and 18-24 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 07/20/2006 have been fully considered but they are not persuasive. DeReus [US 6,876,482] discloses the claimed elements:

- a generally rigid top actuation electrode [114, conductive metal, paragraph 53]
- one or more stoppers [118] positioned on said top actuation electrode and able to maintain a predetermined gap between said top electrode
- a support beam [near 122, the section of beam 108 connected to the anchor 110] to support said top electrode]
- wherein said contact beam is deflected when said switch is in a closed state [figure 2]
- wherein a spring constant of said contact beam is bigger than a spring constant of a support beam associated with said top electrode [figure 2, when in the closed state the contact beam does not deflect while the support beam is deflected].

Applicant's argument that Dickens et al. [US 6,657,525] fails to disclose claim 20 is not persuasive. Dickens et al. teaches that the actuating characteristics of a Mem switch can be adjusted, specifically that adjusting the actuation voltage will change the contact force between the first and second electrical contacts and increase the speed of the switch [col. 6 line 60 to col. 7 line 8].

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2832

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6, 8 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by DeReus [US 6,876,482].

Claim 8, DeReus discloses a device comprising: a contact switch [figures 1 and 2] comprising: a bottom electrode structure including a bottom actuation electrode [106]; and a top electrode structure including a generally rigid top actuation electrode [114, conductive metal, paragraph 53] and one or more stoppers [118] positioned on said top actuation electrode and able to maintain a predetermined gap between said top electrode and said bottom electrode when said switch is in a collapsed state [figure 2], a support beam [near 122, the section of beam 108 connected to the anchor 110] to support said top electrode; a non-rigid contact beam [112, paragraph 52] associated with said top electrode; and a first electrical contact [120] positioned on said contact beam and able to electrically connected with a second electrical contact when said switch is in a closed state [figure 2], wherein a spring constant of said contact beam is bigger than a spring constant of a support beam associated with said top electrode [figure 2, when in the closed state the contact beam does not deflect while the support beam is deflected].

Claim 6, DeReus discloses the device of claim 98 wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state [col. 9 lines 50 to 65].

Claim 7, DeReus discloses the device of claim 8, wherein said bottom electrode structure comprises one or more electrically isolated islands [the electrode is an electrically isolated island since it is isolated by the isolative substrate 102, col. 7 line 61 to col. 8 line 5], and wherein at least one of said stoppers is able to contact at least one of said islands when said switch is in said collapsed position [col. 9 lines 50 to 65].

Claim 11, DeReus discloses a system comprising: a switching arrangement including at least one contact switch comprising: a bottom electrode structure including a bottom actuation electrode [106]; and a top electrode structure including a generally rigid top actuation electrode [114, conductive metal, paragraph 53] and one or more stoppers [118] positioned on said top actuation electrode and able to maintain a predetermined gap between said top electrode and said bottom electrode when said switch is in a collapsed state [col. 9 lines 50 to 65]; a support beam [near 122, the section of beam 108 connected to the anchor 110] to support said top electrode]; a non-rigid contact beam [112, paragraph 52] associated with said top electrode; and a first electrical contact positioned on said contact beam and able to be electrically connected with a second electrical contact [104] when said switch is in a closed state [figure 2]; and a switch controller able to control operation of said at least one contact switch [DeReus inherently requires a controller in order to operate the Mem switch by providing the opening/closing signals to the actuation electrodes], wherein said contact beam is

Art Unit: 2832

deflected when said switch is in a closed state [figure 2], and wherein a spring constant of said contact beam is bigger than a spring constant of a support beam associated with said top electrode [figure 2, when in the closed state the contact beam does not deflect while the support beam is deflected].

Claim 12, DeReus discloses the device of claim 9, wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state [col. 9 lines 50 to 65].

Claim 13, DeReus discloses the system of claim 11, wherein said bottom electrode structure comprises one or more electrically isolated islands [the lower electrode 106, is an electrically isolated island and it is placed on insulative substrate 102, paragraph 50, and spaced from the other switch elements, figure 1], wherein at least one of said stoppers is able to contact at least one of said islands when said switch is in said collapsed state [figure 2].

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeReus [US 6,876,482] in view of Dickens et al. [US 6,657,525].

Claims 5 and 15, DeReus discloses the claimed invention except for the claimed actuation voltage and contact force between the first and second contacts.

Dickens et al. teaches that the speed of a Mem switch and the contact force it applies can be changed by means of varying the actuation voltage [col. 6 line 60 to col. 7 line 8].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the actuation voltage and contact force between the first and second electrical contacts in order to increase the speed of the switch and the contact force by means of varying the actuation voltage as shown by Dickens et al. [col. 6 line 60 to col. 7 line 8].

Claim 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickens et al. [US 6,657,525].

Claim 20, Dickens et al. discloses a contact switch comprising top [114] and bottom [106] electrode structures, said switch is able to be switched to a collapsed

closed state [figure 2] wherein a first electrical contact [120] associated with said top structure is in contact with a second electrical contact [104] associated with said bottom structure, wherein said top structure is in contact with said bottom structure, wherein a predetermined gap is maintained between other portions of said top and bottom structures [by means 118].

Dickens et al. fails to teach the claimed actuation voltage and contact force between the first and second contacts.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the actuation voltage and contact force between the first and second electrical contacts in order to increase the speed of the switch and the contact force by means of varying the actuation voltage as shown by Dickens et al. [col. 6 line 60 to col. 7 line 8].

Claim 18, Dickens et al. discloses the device of claim 20, wherein said top electrode structure comprises a top actuation electrode [60, 61] and one or more stoppers [53, 54].

Claim 19, Dickens et al. discloses the device of claim 20, wherein said bottom electrode structure comprises a bottom actuation electrode [70, 71] and one or more electrically isolated islands [74, 75].

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler et al. [US 2003/0025580] in view of DeReus [US 6,876,482].

Claim 21, Wheeler et al. discloses a wireless device comprising a switching arrangement comprising first [1702] and second [1704] contact switches, said first

switch able to connect said antenna with a transmitter, and said second switch able to connect said antenna with a receiver [figure 17].

Wheeler et al. fails to disclose claimed switch configuration.

DeReus discloses an Rf Mem switch comprising: a bottom electrode structure including a bottom actuation electrode [106]; and a top electrode structure including a generally rigid top actuation electrode [114, conductive metal, paragraph 53] and one or more stoppers [118] positioned on said top actuation electrode and able to maintain a predetermined gap between said top electrode and said bottom electrode when said collapsible switch is in a collapsed state [figure 2], a support beam [near 122, the section of beam 108 connected to the anchor 110] to support said top electrode]; a non-rigid contact beam [112, paragraph 52] associated with said top electrode; and a first electrical contact [120] positioned on said contact beam and able to be electrically connected with a second electrical contact [104] when said switch is in a closed state, wherein said contact beam is deflected when said switch is in a closed state [figure 2], and wherein a spring constant of said contact beam is bigger than a spring constant of a support beam associated with said top electrode [figure 2, when in the closed state the contact beam does not deflect while the support beam is deflected].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the electrostatic Rf Mem switches of Dickens et al. to conserve current since it was known in the art that electrostatic Mem switch use less current for actuation when compared to magnetic Mem switch as the type disclosed by Wheeler et al.

Claim 22, DeReus discloses the device of claim 9, wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state [figure 2, col. 9 lines 50 to 65].

Claim 13, DeReus discloses the device of claim 21, wherein said bottom electrode structure comprises one or more electrically isolated islands [the lower electrode 106, is an electrically isolated island and it is placed on insulative substrate 102, paragraph 50, and spaced from the other switch elements, figure 1], wherein at least one of said stoppers is able to contact at least one of said islands when said switch is in said collapsed state [figure 2].

Claims 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler et al. [US 2003/0025580], as applied to claims 21 and 22 above, and in further view of Dickens et al. [US 6,657,525].

Claim 24, Wheeler et al., as modified, discloses the claimed invention except for the claimed actuation voltage and contact force between the first and second contacts.

Dickens et al. teaches that the speed of a Mem switch and the contact force it applies can be changed by means of varying the actuation voltage [col. 6 line 60 to col. 7 line 8].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the actuation voltage and contact force between the first and second electrical contacts in order to increase the speed of the switch and the contact force by means of varying the actuation voltage as shown by Dickens et al. [col. 6 line 60 to col. 7 line 8].

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M-F 8-4:00, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2832

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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